

**GUAM EPA
TITLE V FEDERAL OPERATING PERMIT
STATEMENT OF BASIS**

**PowerSource Energy Services, Inc.
Agana Shopping Center**

**Permit No. FO-019
Modification #1**

Facility ID:	FO-019
Facility Name:	Agana Shopping Center
Mailing Address:	302 S. Route #4, Suite 100 Hagatna, Guam 96910
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I. Purpose

PowerSource Energy Services operates diesel generators to provide electricity for the Agana Shopping Center under the SIC 3621. The proposed project involves modifying the conditions in the permit to provide greater operating flexibility. This permit also reduces the number of permitted engines from 5 to 4, as per applicant request.

The purpose of this engineering evaluation is to identify all applicable requirements, determine if the facility will comply with those applicable requirements, and provide the legal and factual basis for proposed permit conditions.

II. Facility Location

The Agana Shopping Center is located at 302 S. Route #4 in Hagatna, Guam.

III. Description of Facility Operations

The facility is a shopping center. The facility operates diesel generators to provide power for the shopping center operations. The significant sources of emissions of air pollutants are four 500 kilowatt (kW) generators. There are no insignificant emission sources.

IV. Equipment Listing and Permitting History

IV.A. Significant Emission Units

A listing of all permitted equipment at the facility is presented in the table below.

Emission Unit Number	Unit Description	Associated Control Equipment
GenSet-1	500 kW diesel-fired generator	N/A
GenSet-2	500 kW diesel-fired generator	N/A
GenSet-3	500 kW diesel-fired generator	N/A
GenSet-4	500 kW diesel-fired generator	N/A

IV.B. Insignificant Emission Units

The applicant noted in the permit application for this facility that there are no insignificant activities at the facility.

V. Potential to Emit

The annual potential to emit for each significant emission unit is presented below.

Emission Unit	Potential to Emit (tons/year)						
	NO_x	VOC	SO₂	PM₁₀	CO	Lead	HAPs
GenSet-1	26.4	1.6	4.4	1.1	1.2	--	0.016
GenSet-2	26.4	1.6	4.4	1.1	1.2	--	0.016
GenSet-3	26.4	1.6	4.4	1.1	1.2	--	0.016
GenSet-4	26.4	1.6	4.4	1.1	1.2	--	0.016
TOTAL	105.6	6.4	17.6	4.4	4.8	--	0.064

VI. Guam Requirements

The following table lists the applicable requirements from the Guam Air Pollution Control Standards and Regulations (GAPCSR) and from the approved Guam State Implementation Plan (SIP). For rules where an applicability determination was required, a discussion is included below.

Section 1103.2	Guam Ambient Air Quality Standards
Section 1103.3	Visible Emissions
Section 1103.4	Fugitive Dust
Section 1103.10	Sulfur Oxides from Fuel Combustion
Section 1103.11	Open Burning
Section 1103.12	Control of Odors in Ambient Air
Section 1103.13	Asbestos
Section 1104	Permit Program Regulations
SIP, Section 7.5	Particulate Emissions from Fuel Combustion

VI.A. Particulate Matter (PM) Limits for Fuel Burning Equipment

Section 7.5 of the GEPA SIP requires that for fuel burning equipment between 1 and 1,000 MMBtu/hr in size, the allowable particulate emissions shall be calculated using the following equation:

$$Y = 1.02 X^{-0.231}$$

Where:

Y = Allowable particulate emission rate (lb/MMBtu)

X = Operating rate (MMBtu/hr)

According to the application for this project, the heat input rate for each 500 kW engine would be 4.30 MMBtu/hr. Therefore, each of the four diesel generators is subject to this limit. Using the formula listed above, the calculated PM limit for each engine is:

$$\begin{aligned}\text{Allowable PM emissions} &= 1.02 \times (4.30 \text{ MMBtu/hr})^{-0.231} \\ &= 0.728 \text{ lb/MMBtu}\end{aligned}$$

VII. Federal Requirements

The following table lists the applicable requirements from United States Environmental Protection Agency (USEPA) regulations. For rules where an applicability determination

was required, including rules that have been determined to be inapplicable to the proposed source, a discussion is included below.

40 CFR Part 61, Subpart M	Asbestos
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VII.A. Prevention of Significant Deterioration (PSD)

The potential to emit listed above was provided by the applicant. Based on a review of the application for this project, these emissions were calculated based on emission factors provided by the proposed engine manufacturer, China National Electric. These calculations also assume that each of the four proposed engines would not operate more than 4,950 hours/year.

The federal Prevention of Significant Deterioration (PSD) program contains requirements for major new or modified sources of air pollution proposed in areas considered in attainment of the National Ambient Air Quality Standards (NAAQS). The major source threshold for the proposed Agana Shopping Center under the PSD program is 250 tons/year of any regulated pollutant.

Conditions have been added to the permit for this facility to ensure that emissions from the proposed facility remain below the PSD major source threshold. These conditions include a requirement to demonstrate compliance with the emission factors provided by the engine manufacturer, China National Electric. A requirement for annual source testing has been added to the permit for this purpose. Also, consistent with USEPA requirements regarding practical enforceability, equivalent limitations on hours of operation and fuel usage for the engines have been added to the permit. The applicant has been provided the flexibility to demonstrate that either of these has been satisfied as a means of limiting operation.

VII.B. Air Dispersion Modeling

At the request of Guam EPA, the applicant has provided air dispersion modeling performed for the proposed engines to be located at the Agana Shopping Center. Although the proposed project does not trigger the PSD program, compliance with both the NAAQS and the PSD increments is required collectively for minor sources. In the application submitted for the project, the results of this modeling were shown to be lower than the NAAQS for each pollutant for each associated averaging time. A comparison with the PSD increments was performed by Guam EPA, as discussed below.

The modeling results in the submitted application contained impacts modeled at elevated receptors as well as ground-level receptors. This modeling was performed to demonstrate

that the NAAQS would be satisfied at all locations where the public might be exposed to air pollution, including the elevated floors of the proposed Agana Shopping Center. Compliance with PSD increments is not required to be demonstrated at receptors higher than ground-level, as stated in two EPA guidance documents on this topic.^{1,2} As a result, only results from ground-level receptors were compared to the PSD increment, while results from elevated receptors were included in the assessment of NAAQS compliance.

Based on modeling performed for this project, the proposed Agana Shopping Center will not cause ambient air impacts that exceed either the NAAQS or the PSD increments.

VII.C. New Source Performance Standards (NSPS)

EPA has adopted a New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines in 40 C.F.R. Part 60, Subpart IIII. This NSPS generally applies to engines constructed, modified or reconstructed after the applicability date listed in this rule. This NSPS contains a special section in 40 C.F.R. 60.4215 for engines used on Guam, as listed below:

“What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?”

(a) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §60.4205. Non-emergency stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder, must meet the applicable emission standards in §60.4204(c).

(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207.”

The proposed engines are not subject to the applicable emission standards in 40 C.F.R. 60.4205, since that section applies only to emergency engines used for standby power in the event of an emergency. The proposed engines are also not subject to the requirements of 40 C.F.R. 60.4204(c), since the proposed engines would have a displacement well below 30 liters per cylinder. According to data provided with the application, the

¹ Memorandum from G.T. Helms, EPA Chief Control Programs Operations Branch to Bruce P. Miller, Chief Air Programs Branch, EPA Region IV, “Ambient Air Definition,” September 21, 1987.

² Memorandum from Joseph A. Cannon, EPA Assistant Administrator for Air and Radiation to Charles R. Jeter Regional Administrator, EPA Region IV, “Applicability of PSD Increments to Building Rooftops,” January 11, 1984.

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displacement of these engines should each be below 10 liters per cylinder.

As a result, there are no requirements from the Stationary Compression Ignition Internal Combustion Engine NSPS that apply to the engines proposed for use at the Agana Shopping Center.

VIII. Periodic Monitoring

Requirement	Requirement Condition #	Monitoring/Recordkeeping Requirement	Monitoring/Recordkeeping Condition #
PM ₁₀ limit for diesel generators	II.B.1.a	Annual source test	II.D.4
NO _x limit for diesel generators	II.B.1.b	Annual source test	II.D.4
SO ₂ limit for diesel generators	II.B.1.c	Fuel sulfur content analysis and recordkeeping	II.D.7 and II.E.3
CO limit for diesel generators	II.B.1.d	Annual source test	II.D.4
HC limit for diesel generators	II.B.1.e	Annual source test	II.D.4
PM emission limit for fuel burning equipment	II.B.2	Annual source test and monthly opacity monitoring	II.D.4 and II.D.8
Opacity limits for fuel burning equipment	II.B.3	Monthly opacity monitoring	II.D.8
Preventative maintenance	II.C.1	Inspection and maintenance recordkeeping	II.E.2
Adequate control measures preventing air quality exceedences	II.C.2	N/A	N/A
Fuel usage and hours of operation limitation for diesel generators	II.C.3	Fuel consumption recordkeeping	II.E.3
Power output limitation for diesel generators	II.C.4	Fuel consumption recordkeeping	II.E.3
Fuel sulfur content limit for diesel generators	II.C.5	Fuel sulfur content analysis and recordkeeping	II.D.7 and II.E.3
Fugitive dust restrictions	II.C.6 and II.C.7	Monthly opacity monitoring	II.D.8